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Records of Redhead × Canvasback hybrids.—Because of similarities in habitat use, courtship display, and appearance, Canvasbacks (*Aythya valisineria*) and Redheads (*A. americana*) have long been suspected to hybridize in nature (Hochbaum, The Canvasback on a Prairie Marsh, Stackpole Co., Harrisburg, Pennsylvania, 1944; Weller, *Auk* 84:544–559, 1967). This notion has been strengthened by observation of interspecific courtship in the wild (Hochbaum 1944:40; Weller 1967:557; Timken, *Auk* 84:588, 1967), and by record of a few captive hybrids (Gray, Bird Hybrids, Commonwealth Agric. Bur., Bucks, England, 1958). Hybridization is of particular interest because the Canvasback is often principal host for Redhead nest parasitism (Weller, *Ecol. Monogr.* 29:333–365, 1959; Sugden, *J. Field Ornithol.* 51:361–364, 1980), a relationship requiring special adaptation with regards to Redhead sexual imprinting to maintain species isolation (Mattson and Evans, *Can. J. Zool.* 52: 421–427, 1974). A review of the literature has indicated that only a single suspected wild hybrid has been reported (McIlhenny, *Bird-Banding* 8:119, 1937).

While trapping Canvasbacks on the Potomac River near Dahlgren, King George Co., Virginia, I captured two suspected Redhead × Canvasback adult male hybrids that I later banded and released. The first hybrid was caught on 8 January 1980, and the second on 5 January 1982. Weight and wing chord measurements of the hybrid birds agreed closely with measurements of adult male Canvasbacks captured with them (Table 1). Both hybrids resembled male Canvasbacks in body and wing plumage, but were intermediate between Canvasback and Redhead in the structure and coloration of the head, neck, and bill (Fig. 1). Both bill and neck appeared shorter and the bill and crown were more rounded, i.e., less wedge-shaped than in the Canvasback. Head and neck plumage of both hybrids was chestnut-red, like that of the Redhead. The head lacked the dark wash and particularly the black face and crown of the Canvasback. The bill was marked like that of the Redhead, having a black tip, a white subterminal band, and pale-blue coloration extending well past the nares to near the base of the bill. The eye of both hybrids was yellow-orange, intermediate between the yellow eye of the Redhead drake and the scarlet-red eye of the male Canvasback. This may not have been the true eye color of the hybrids, however, for I have often observed the eyes of male Canvasbacks turn yellow as a result of capture stress. The scapular plumage of the hybrid birds was near-white but slightly darker than is characteristic of the Canvasback.

A survey of Canvasback and Redhead banders over the past decade revealed the capture

TABLE 1
WEIGHT AND WING CHORD MEASUREMENTS OF REDHEAD × CANVASBACK HYBRIDS AND
CANVASBACKS CAPTURED ON THE POTOMAC RIVER

Date	Specimen ^a	Weight (g)	Wing chord (mm)
8 Jan. 1980	Redhead × Canvasback	1360	239
	Canvasback (N = 45)	1353 ± 13 ^b	239.4 ± 0.4
5 Jan. 1982	Redhead × Canvasback	1430	240
	Canvasback (N = 16)	1357 ± 13	240.3 ± 0.7

^a All birds are adult males.

^b Mean ± standard error.



FIG. 1. Adult male Redhead \times Canvasback hybrid captured on the Potomac River near Dahlgren, Virginia, 8 January 1980.

of four additional hybrids (Table 2): all were males, two of which were placed in the National Museum of Natural History in Washington, D.C. Three of the birds were captured from Canvasback flocks, and a single hybrid, captured by R. Ryan, was obtained from a Redhead flock.

I visited the National Museum to compare the hybrid study skins with the hybrids from the Potomac River. I also obtained photos of Ryan's hybrid and a description of Munro's 1972 capture (R. Munro, pers. comm.). Comparison of all six hybrids showed that five of the birds, all captured from Canvasback flocks, resembled the Potomac River hybrids as earlier described. These five hybrids resembled the one wild male and one captive-propagated male hybrid briefly described by McIlhenny (1937:119) and Weller (Wilson Bull. 69:32, 1957), respectively. Ryan's hybrid, the only hybrid captured from a Redhead flock, appeared to be structurally similar to the other hybrids, but had body plumage that matched that of the Redhead and head and bill coloration that was more Canvasback-like. The bill of this bird was black except for faint blue patches near its base. Following an earlier study of *Aythya*

TABLE 2
 ADDITIONAL CAPTURES OF REDHEAD \times CANVASBACK HYBRIDS FROM A SURVEY OF
 CANVASBACK BANDERS 1972-1982

Banders	Date	Location	Description
Robert Munro	Dec. 1972	Eastern Neck National Wildlife Refuge, Rock Hall, Maryland	adult male; escaped unbanded
Robert Munro	6 Feb. 1974	Gibson Island, Maryland	adult male; collected ^a
Richard Ryan	14 Feb. 1976	Seneca Lake near Geneva, New York	immature male; 1380 g, released
Jerome Serie	11 Nov. 1976	Pool 8, Mississippi River near Stoddard, Wisconsin	adult male; 1590 g, collected ^a

^a Study skin placed in National Museum of Natural History, Washington, D.C.

hybrids (Gillham et al., Wildfowl Trust Ann. Rpt. 17:49-65, 1966), these hybrids could be broadly categorized as "Canvasback-type" and "Redhead-type" hybrids, respectively. Other hybrid types may also occur, particularly since hybrid fertility has been documented (Weller 1957:33) and backcrossing is likely to occur.

I also compared study skins of hybrids with those of *A. valisineria*, *A. americana*, and the palearctic Common Pochard (*A. ferina*), a species known to resemble Redhead \times Canvasback hybrids (Weller 1957:32; Delacour, The Waterfowl of the World, Country Life Ltd., London, England, 1959:61). My observations confirmed the close resemblance particularly in head and bill structure between hybrid and *A. ferina* specimens, although the latter were clearly smaller birds. The scapular plumage of *A. ferina* specimens was found to be particularly close to that of the "Canvasback-type" hybrids, but contrasted sharply in color with the "Redhead-type" hybrid.

Measurements of museum study skins (Table 3) show that Canvasbacks have a significantly larger culmen ($t = 20.0$, $df = 26$, $P < 0.01$) and wing chord ($t = 2.27$, $df = 15$, $P < 0.05$) than Redheads; Common Pochards have a culmen length similar to Redheads ($t' = 1.34$, $df = 25$, $P > 0.05$) but exhibit a significantly shorter wing chord ($t = 12.8$, $df = 17$, $P < 0.01$). Live weights of adult males confirm the size differences in these three species: Canvasbacks averaged 1326 g ($N = 247$) during January 1978 on the Chesapeake Bay (Nichols and Haramis, Condor 82:412, 1980), Redheads averaged 1226 g ($N = 90$) during January in New York State (1960 and 1971 data combined from Ryan, J. Wildl. Manage. 36:761, 1972), and the Common Pochard averaged 849 g ($N = 119$) from December to February in the Camargue, France (Bauer and Glutz von Blotzheim, Handbuch der Vögel Mitteleuropas, Frankfurt am M., W. Germany, Vol. 3, 1969). Measurements from hybrid birds show them to have a wing chord similar to the Canvasback, culmen length intermediate between Canvasback and Redhead (Tables 1 and 3), and weight in the upper range of the Canvasback (Tables 1 and 2).

Evidence from the current Canvasback banding program on the Chesapeake Bay suggests that Redhead \times Canvasback hybrids are rare. An examination of over 13,000 Canvasbacks yielded only two hybrids. Other hybrids probably occurred, but were less distinctive and went unrecognized. Female hybrids are especially hard to detect (cf. Gillham et al. 1966).

TABLE 3
MEASUREMENTS OF MALE STUDY SKINS AT NMNH^a AND LIVE REDHEAD × CANVASBACK
HYBRIDS CAPTURED ON THE POTOMAC RIVER

Specimen	Culmen (mm)	Wing chord (mm)
Redhead × Canvasback hybrids		
I.D. No. 567521 (Munro, 6 Feb. 1974)	54.5	237
I.D. No. 573675 (Serie, 1 Nov. 1976)	56.4	240
Potomac hybrids (8 Jan. 1980)	58.0 ^b	239
(5 Jan. 1982)	58.2	240
Typical specimens^c		
Canvasback ^d	61.4 ± 0.5 ^e	239.3 ± 1.1
	N = 16	N = 7
Redhead ^f	48.4 ± 0.4	235.7 ± 1.1
	N = 12	N = 10
Common Pochard ^g	47.4 ± 0.7	212.8 ± 1.4
	N = 15	N = 9

^a National Museum of Natural History, Washington, D.C.

^b Estimated from photographs.

^c Culmen measurements taken from adult and full-grown juvenile specimens; wing chords taken from adult males only.

^d Specimens are from Maryland (8), Texas (3), Delaware (2), North Dakota (1), Louisiana (1), and Mississippi (1).

^e Mean ± standard error.

^f Specimens are from North Carolina (3), Texas (3), North Dakota (2), Pennsylvania (1), California (1), Oregon (1), and Utah (1).

^g Specimens are from Europe (8), Egypt (2), Alaska (3), India (1), and Turkey (1).

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High mortality of Cedar Waxwings associated with highway plantings.—Highway mortality in birds is a commonly reported phenomenon, but few studies identify specific factors affecting such mortality. On 8 March 1981 we observed a number of Cedar Waxwings (*Bombycilla cedrorum*) being hit by cars at several areas on the Texas Highway 6 bypass, a limited access highway, near Bryan, Brazos Co., Texas. At each area the birds were feeding on the fruit of silverberry (*Eleagnus pungens*) planted in the median of the four-lane highway. The shrubs were 1.5–2 m in height and were 3.5 m from the paved shoulder of the highway. The Texas Department of Highways planted *E. pungens* along the bypass in 1974. As cars passed, feeding flocks of waxwings flew up, crossing the highway, only to return immediately to the shrubs with several birds being hit with each pass of the flock.

At three such areas along Highway 6, totaling 275 m of plantings over a 3 km section of highway, we counted a total of 298 dead Cedar Waxwings between 8 March and 5 April